

VI. *On some bionomic points in certain South African Lamellicorns.* By G. B. LONGSTAFF, M.D., F.E.S.

[Read February 7th, 1906.]

MR. TRIMEN, in the introductory chapter of his "South African Butterflies," after remarking on the poverty of the *Rhopalocera* of the Cape Peninsula as compared with the richness of its Flora, and stating that in that part of the world butterflies cannot perform a very prominent part in the fertilization of flowers, goes on to say: "The great number of densely hairy flower-frequenting *Coleoptera* in South Africa must also play a large part in plant fertilization." *

The beetles referred to are chiefly *Lamellicornia* of the sub-families *Cetoniinæ* and *Hopliinæ*.

CETONIINÆ.

As regards the former group, Dr. Dixey and I met with but eight species, being doubtless too early in the season. Of the beautiful gem-like *Oxythyrea hæmorrhoidalis*, Fab., which was not uncommon on flowers by the banks of the Nahoon and Buffalo Rivers, near East London, I have nothing to remark save that Fabricius might well have given such a beautiful creature a more appropriate name.

The more dingy *Oxythyrea marginalis*, Schönh., was first met near Pretoria on the lavender-coloured flowers of a Loganiaceous plant of the genus *Buddleia*, but at East London it was abundant, occurring sometimes on composite flowers, but mostly on the "Pride of Madeira" (*Echium fastuosum*), a Boragineous plant with a long dense terminal spike of small flowers with prominent stamens. The spikes are from four to six feet high with blue or creamy-white flowers, those in the Queen's Park being all of the latter variety; they proved very attractive to insects of several orders and especially to the small *Oxythyrea marginalis*, Schönh. I noticed at the time that this beetle was rendered strangely inconspicuous by the white specks on

* *Op. cit.* vol. i, p. 42, note.

thorax and elytra breaking up the dark ground-colour and simulating the general look of the anthers of the flower. Another small Cetoniid, *Stringophorus flavipennis*, G. and P., occurred on the same flowers and its elytra bear similar spots. Together with these were two specimens of a third and still smaller Cetoniid, *Comythovalgus fasciculatus*, Schönh., which were quite difficult to distinguish, but in this case the means of concealment was different, for the thorax and elytra bear numerous conical, horny projections, while there are two conical tufts of scales near the apex of the abdomen.

Two larger species, *Rhabdotis (Pachnoda) sobrina*, G. and P., dark olive-brown and white, and *Macroma cognata*, Schönh., dark chocolate-brown and canary-yellow, both seemed conspicuous enough, the one at the sweet white flowers of *Dombeya*, the other on the wing, but I strongly suspect that in their case too, when on an appropriate background the breaking up of the dark colour by light markings aids concealment.

With *Gametis balteata*, De G., the case is different. This beetle is black and red, or perhaps orange-brown more correctly describes its decoration. At East London, on one of the tributaries of the Buffalo River, there grows a profusion of a climbing composite with greenish-white flowers, a plant in general habit and appearance very suggestive of *Clematis vitalba*, L. On one of these plants I took a number of specimens of two species of *Haplolyeus*, which are represented in the National Collection but as yet unnamed. These Malacoderms have the usual *Lycus* coloration, viz. orange-brown with the apical two-fifths of the elytra black, and a black stripe down the middle of the thorax. On the same day, on another bush of the same climbing composite growing a hundred yards higher up the stream, I took an example of *Gametis balteata*, De G., and was at once struck by the striking resemblance of the two insects. I may remind any Fellows who are not familiar with living specimens of beetles of the *Lycus* group, that during life the orange-brown colour is much redder than might be supposed from cabinet specimens, whereas the *Cetoniid* preserves its colour well.

The very next day Dr. Dixey saw both these beetles in some numbers (3 *Haplolyeus* and 8 *Gametis*) in the Queen's Park on and about a flowering tree and noted their similarity. With them were two specimens of a Lycoid-coloured

Braconid (*Zombrus*, sp.). The *Gametis* resembles the *Haplolytus* the other way on, the head of the one being coloured like the tail of the other, but probably that fact does not detract from any benefit that it may derive from the likeness. Mr. G. A. K. Marshall has proved experimentally that Lycoid beetles are very distasteful to Kestrels and Baboons.* *Gametis balteata* may now be added to the wonderful synaposematic Lycoid group figured in Plate XIII of Mr. Marshall's paper.

HOPLIINÆ.

We met with thirteen species of *Hopliinæ* in Cape Colony. The most obvious characteristic of the group is the great length of their posterior legs. The development of these varies greatly in different species, but in the majority of cases is much greater in the males than in the females. Indeed in some species the male femora and tibiæ are grotesquely disproportioned to the animals; moreover both femora and tibiæ are provided on their inner sides with strong spurs or spines (perhaps better described as teeth). These strange limbs evidently attracted the attention of the older writers, since Fabricius named one species *dentipes*, and Burmeister another *forcipatus*. The explanation of these hypertrophied legs that is usually received is that they are used by the males to grasp the females. Mr. Trimen, accepting this explanation, tells me that he thinks that copulation is attended with especial difficulty in these beetles.

The latest writer on the subject, Mr. Péringuey, rejects the ordinary explanation in the following words:—

“The great development of the hind-legs is not intended for securing a better hold of the female. There is nothing more ridiculous than to see half-a-dozen males with their long hind-legs emerging from the pistils of a composite flower where they are mobbing a female which is almost entirely buried head foremost in the pistils, the sub-horizontal pygidium alone being exposed to view. But it is when disentangling themselves that the use of the long hind-legs becomes apparent; by means of his long, hinged claw the male hooks himself out of the corolla. It is not only amongst the flower-frequenting kinds that this extraordinary development of the hind-legs with their curiously

* Transactions Ent. Soc. Lond., 1902, Part II, pp. 340, 344, 380.

serrate, dentate and mucronate tibiae is met with, because the species of *Hoplocnemis*, in which the development has become almost a monstrosity, do not feed on flowers, or at least have not been observed doing so. Their habits seem to be more those of certain *Dynastinae*, and I suspect them to live, while in the larval state, in the excrement deposits of the subterranean white ant, *Hodotermes viator*, Latr."*

Mr. Péringuey, I am bound to say, fails to convince me, and I venture upon yet another explanation.

Many of the species of *Dichelus* and *Heterochelus* burrow

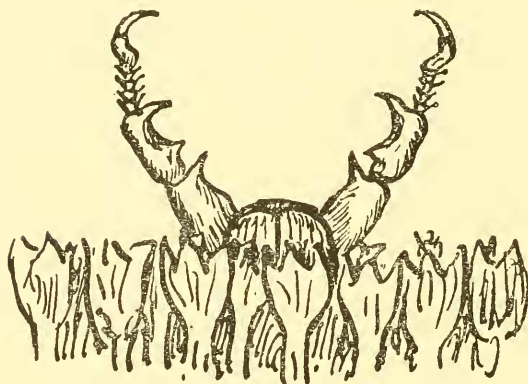


Diagram of posterior legs of *Heterochelus*, ♂.
The body of the beetle is buried in the florets of a
composite flower ($\times 5$ diam.).

into the disks of composite flowers, eating out the ovaries. When so engaged the whole of the body of the insect may disappear from view, or the extremity of the abdomen may alone protrude, but in either case the hind-legs extend beyond the florets, widely separated and closely resembling the open jaws of an ant-lion. While picking one out of a flower I was startled by receiving a very respectable pinch, or bite, inflicted by the formidable teeth above referred to.

Now the suggestion that I have to offer is this: while probably in the first instance adapted to assist the male insect in grasping its mate, these huge hind-legs are now of great advantage to the otherwise helpless beetle when

* Transactions of the South African Philosophical Society, vol. xii, pp. 625, 626. *Descriptive Catalogue of the Coleoptera of South Africa*, *Hopliinae*, by L. Péringuey, F.E.S.

burrowing into flowers in search of food. The widely gaping jaws may probably terrify some enemies, but they certainly afford by no means despicable weapons of defence against such foes as may presume to come to close quarters.

This suggestion meets with support from the fact that *Lepitrix lineata*, Fab., a pretty species that I found abundantly on the flowers of *Mesembryanthemum* at Simon's Town, has long thin hind-legs not provided with teeth, but, unlike *Heterochelus* and *Dichelus*, this insect is very active, taking to its wings almost as readily as a bee.

Dr. Dixey did not notice this beetle on *Mesembryanthemum*, but not far off found five specimens in spathes of the "Cape Lily," *i. e.* common white arum (*Richardia africana* = *Calla æthiopica*), three in one spathe and two in another. He says that they did not attempt to fly. Possibly the fact that they were to some extent enclosed in the arum, whereas those on *Mesembryanthemum* were exposed, may explain this notable difference of habit.

In conclusion I have to thank Messrs. C. J. Gahan and G. J. Arrow, of the British Museum Staff, for their great kindness in naming my South African *Colcoptera*.

